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1646

PTO/SB/21 (04-07)

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## TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

		Application Number	09/530,233-Conf. #3952
		Filing Date	April 26, 2000
		First Named Inventor	Philippe SEGUELA
		Art Unit	1646
		Examiner Name	M. D. Pak
Total Number of Pages in This Submission		Attorney Docket Number	PCI-017USRCE2

### ENCLOSURES (Check all that apply)

<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/ Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): Certificate of Express Mailing PTO Form SB/08 Complete Copies Thirty-Two (32) Cited References Return Receipt Postcard
Remarks		

### SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	LAHIVE & COCKFIELD, LLP		
Signature			
Printed name	Cynthia L. Kanik, Ph.D.		
Date	June 15, 2007	Reg. No.	37,320



Docket No.: PCI-017USRCE2  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:  
Philippe Seguela *et al.*

Application No.: 09/530,233

Confirmation No.: 3952

Filed: April 26, 2000

Art Unit: 1646

For: **DNA ENCODING A HUMAN PROTON-GATED ION CHANNEL AND USES THEREOF**

Examiner: M. D. Pak

Mail Stop Amendment  
Commissioner for Patents  
Post Office Box 1450  
Alexandria, VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT (IDS)**

Dear Sir:

Pursuant to 37 CFR 1.56, 1.97 and 1.98, the attention of the U.S. Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. Complete copies of each cited reference and/or publication is enclosed. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue.

This Information Disclosure Statement is filed after the mailing date of a Final Office Action or Notice of Allowance, whichever occurred first, but on or before payment of the Issue Fee (37 CFR 1.97(d)). Applicants hereby petition that the Information Disclosure Statement be considered.

I hereby certify, pursuant to 37 CFR 1.97(e)(2), that no item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, no item of information contained in this Information Disclosure Statement was known to any

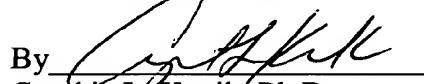
individual designated in 37 CFR 1.56(c) more than three months prior to the filing of this Information Disclosure Statement.

Please charge our Deposit Account No. 12-0080 in the amount of \$180.00 covering the fee set forth in 37 CFR 1.17(p). The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 12-0080, under Order No. PCI-017USRCE2. A duplicate copy of this paper is enclosed.

Dated: June 15, 2007

Respectfully submitted,

By

  
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Attorney for Applicants



Substitute for form 1449A/B/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet

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of

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Complete If Known	
Application Number	09/530,233
Filing Date	April 26, 2000
First Named Inventor	Philippe Sequela
Art Unit	1646
Examiner Name	Michael D. Pak
Attorney Docket Number	PCI-017USRCE2

### U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

### FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
	A1	WO 97/01577 A1	01-16-1997	University College London		
	A2	WO 98/54316 A1	03-12-1998	Synthe-Lab		
	A3	WO 98/35034 A1	08-13-1998	Centre Nat Rech Scient		

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

### NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	A4	Adams, et al. Ripped pocket and pickpocket, novel Drosophila DEG/ENaC subunits expressed in early development and in mechanosensory neurons. J Cell Biol. 1998 Jan 12;140(1):143-52.	
	A5	Babinski, et al. Molecular cloning and regional distribution of a human proton receptor subunit with biphasic functional properties. J Neurochem. 1999 Jan;72(1):51-7.	
	A6	Bassilana, et al. The acid-sensitive ionic channel subunit ASIC and the mammalian degenerin MDEG form a heteromultimeric H <sup>+</sup> -gated Na <sup>+</sup> channel with novel properties. J Biol Chem. 1997 Nov 14;272(46):28819-22.	
	A7	Bertrand, et al. Electrophysiology of Neuronal Nicotinic Acetylcholine Receptors Expressed in Xenopus Oocytes Following Nuclear Injection of Genes of cDNAs. <i>Methods in Neurosciences</i> , 1991, Academic Press Inc., New York, pp. 174-193.	
	A8	Bevan, et al. Nerve growth factor (NGF) differentially regulates the chemosensitivity of adult rat cultured sensory neurons. J Neurosci. 1995 Jul;15(7):4918-26.	
	A9	Bevan, et al. Protons activate a cation conductance in a sub-population of rat dorsal root ganglion neurones. J Physiol. 1991 Feb;433:145-61.	
	A10	Canessa, et al. Amiloride-sensitive epithelial Na <sup>+</sup> channel is made of three homologous subunits. Nature. 1994 Feb 3;367(6462):463-7.	
	A11	Chen, et al. A sensory neuron-specific, proton-gated ion channel. Proc Natl Acad Sci U S A. 1998 Aug 18;95(17):10240-5.	

Examiner Signature	Date Considered
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Substitute for form 1449A/B/PTO

# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet

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of

3

**Complete If Known**

Application Number	09/530,233
Filing Date	April 26, 2000
First Named Inventor	Philippe Sequela
Art Unit	1646
Examiner Name	Michael D. Pak

Attorney Docket Number

PCI-017USRCE2

B1	Corey, <i>et al.</i> Mechanosensation and the DEG/ENaC ion channels. <i>Science</i> . 1996 Jul 19;273(5273):323-4.
B2	Coscoy, <i>et al.</i> The Phe-Met-Arg-Phe-amide-activated sodium channel is a tetramer. <i>J Biol Chem</i> . 1998 Apr 3;273(14):8317-22.
B3	Dray, <i>et al.</i> Bradykinin and inflammatory pain. <i>Trends Neurosci</i> . 1993 Mar;16(3):99-103.
B4	Firsov, <i>et al.</i> The heterotetrameric architecture of the epithelial sodium channel (ENaC). <i>EMBO J</i> . 1998 Jan 15;17(2):344-52.
B5	Garcia-Anoveros, <i>et al.</i> BNaC1 and BNaC2 constitute a new family of human neuronal sodium channels related to degenerins and epithelial sodium channels. <i>Proc Natl Acad Sci U S A</i> . 1997 Feb 18;94(4):1459-64.
B6	Ishibashi, <i>et al.</i> Molecular cloning of a DEG/ENaC sodium channel cDNA from human testis. <i>Biochem Biophys Res Commun</i> . 1998 Apr 17;245(2):589-93.
B7	Krishtal, <i>et al.</i> A receptor for protons in the membrane of sensory neurons may participate in nociception. <i>Neuroscience</i> . 1981;6(12):2599-601.
B8	Krishtal, <i>et al.</i> Rapid extracellular pH transients related to synaptic transmission in rat hippocampal slices. <i>Brain Res</i> . 1987 Dec 15;436(2):352-6.
B9	Lindahl. Pain – A General Chemical Explanation. <i>Adv. Neurol</i> . 1974. 4:45-47.
B10	Lingueglia, <i>et al.</i> Cloning of the amiloride-sensitive FMRFamide peptide-gated sodium channel. <i>Nature</i> . 1995 Dec 14;378(6558):730-3.
B11	Lingueglia, <i>et al.</i> A modulatory subunit of acid sensing ion channels in brain and dorsal root ganglion cells. <i>J Biol Chem</i> . 1997 Nov 21;272(47):29778-83.
B12	North. Families of ion channels with two hydrophobic segments. <i>Curr Opin Cell Biol</i> . 1996 Aug;8(4):474-83.
B13	Price, <i>et al.</i> Cloning and expression of a novel human brain Na <sup>+</sup> channel. <i>J Biol Chem</i> . 1996 Apr 5;271(14):7879-82.
B14	Snyder, <i>et al.</i> Electrophysiological and biochemical evidence that DEG/ENaC cation channels are composed of nine subunits. <i>J Biol Chem</i> . 1998 Jan 9;273(2):681-4.
B15	Tavernarakis, <i>et al.</i> unc-8, a DEG/ENaC family member, encodes a subunit of a candidate mechanically gated channel that modulates <i>C. elegans</i> locomotion. <i>Neuron</i> . 1997 Jan;18(1):107-19.
B16	Ugawa, <i>et al.</i> Receptor that leaves a sour taste in the mouth. <i>Nature</i> . 1998 Oct 8;395(6702):555-6.
B17	Waldmann, <i>et al.</i> The mammalian degenerin MDEG, an amiloride-sensitive cation channel activated by mutations causing neurodegeneration in <i>Caenorhabditis elegans</i> . <i>J Biol Chem</i> . 1996 May 3;271(18):10433-6.
B18	Waldmann, <i>et al.</i> Molecular cloning of a non-inactivating proton-gated Na <sup>+</sup> channel specific for sensory neurons. <i>J Biol Chem</i> . 1997 Aug 22;272(34):20975-8.
B19	Waldmann, <i>et al.</i> A proton-gated cation channel involved in acid-sensing. <i>Nature</i> . 1997 Mar 13;386(6621):173-7.

Examiner Signature	Date Considered
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Substitute for form 1449A/B/PTO				<b>Complete If Known</b>	
				Application Number	09/530,233
				Filing Date	April 26, 2000
				First Named Inventor	Philippe Sequela
				Art Unit	1646
				Examiner Name	Michael D. Pak
Sheet	3	of	3	Attorney Docket Number	PCI-017USRCE2

	C1	Waldmann, <i>et al.</i> H(+) -gated cation channels: neuronal acid sensors in the NaC/DEG family of ion channels. <i>Curr Opin Neurobiol.</i> 1998 Jun;8(3):418-24.	
	C2	Weille, <i>et al.</i> Identification, functional expression and chromosomal localisation of a sustained human proton-gated cation channel. <i>FEBS Lett.</i> 1998 Aug 21;433(3):257-60.	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached.

Examiner Signature	Date Considered
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JUN 15 2007

PATENT & TRADEMARK OFFICE

Application No. (if known): 09/530,233

Attorney Docket No.: PCI-017USRCE2

## Certificate of Express Mailing Under 37 CFR 1.10

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Cynthia L. Kanik, Ph.D.

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37,320  
Registration Number, if applicable

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Telephone Number

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4. Information Disclosure Statement (2 pages)
5. Certificate of Express Mailing (1 page)
6. PTO Form SB/08 (List of Cited References) (3 pages)
7. Complete Copies Thirty-Two (32) Cited References

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JUN 15 2007

PTO/SB/17 (06-07)

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).  
Effective on 12/08/2004.

# FEE TRANSMITTAL

## For FY 2007

Applicant claims small entity status. See 37 CFR 1.27

**TOTAL AMOUNT OF PAYMENT** (\$ 180.00)

### Complete if Known

Application Number	09/530,233-Conf. #3952
Filing Date	April 26, 2000
First Named Inventor	Philippe SEGUELA
Examiner Name	M. D. Pak
Art Unit	1646
Attorney Docket No.	PCI-017USRCE2

### METHOD OF PAYMENT (check all that apply)

Check  Credit Card  Money Order  None  Other (please identify): \_\_\_\_\_

Deposit Account Deposit Account Number: 12-0080 Deposit Account Name: Lahive & Cockfield, LLP

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

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### FEE CALCULATION

#### 1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES	
	Fee (\$)	Small Entity	Fee (\$)	Small Entity	Fee (\$)	Small Entity
Utility	300	150	500	250	200	100
Design	200	100	100	50	130	65
Plant	200	100	300	150	160	80
Reissue	300	150	500	250	600	300
Provisional	200	100	0	0	0	0

#### 2. EXCESS CLAIM FEES

##### Fee Description

Each claim over 20 (including Reissues)

Small Entity  
Fee (\$) Fee (\$)

50 25

Each independent claim over 3 (including Reissues)

200 100

Multiple dependent claims

360 180

Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
- =	x	=	

Multiple Dependent Claims	
Fee (\$)	Fee Paid (\$)

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
- =	x	=	

HP = highest number of independent claims paid for, if greater than 3.

#### 3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
- 100 =	/50 =	(round up to a whole number) x	=	

#### 4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): 1806 Submission of an Information Disclosure Statement 180.00

#### SUBMITTED BY

Signature		Registration No. (Attorney/Agent)	37,320	Telephone	(617) 227-7400
Name (Print/Type)	Cynthia L. Kanik, Ph.D.			Date	June 15, 2007